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ABSTRACT

Background Medical misconduct is an international problem. It is judged according to whether a doctor has endangered the health of the public. Little is known about the risk factors associated with medical misconduct. To inform patient safety, we undertook a focused mapping review and synthesis (FMRS) of tribunal reports retrieved from the Medical Practitioners Tribunal Service (MPTS).

Methods A four-phase FMRS was undertaken: (1) identification and retrieval of 1-year tribunal transcripts from the MPTS (focus), (2) analysis of transcripts to identify patterns mapped to 'a priori' risk factors (mapping), (3) peer review of the data (calibration) and (4) creation of a risk profile (synthesis).

Results Out of the 351 investigative tribunals, 249 (70.94%) resulted in a guilty verdict. 82.73% of all guilty verdicts led to the removal of the doctor from practice. Through the identification of four a priori risk factors, we developed a model of risk associated with medical misconduct: (1) being male, (2) primary medical qualification (PMQ) outside of the UK, (3) working within general practice and surgical specialties, and (4) having passed PMQ more than 20 years ago. Notable 'unconfirmed' factors, such as locum work, PMQ achieved outside of the European Union, increasing age and lack of clinical guidance are also relevant to what is deemed professional behaviour and what is not.

Conclusions The findings can inform debates about patient safety and lay the groundwork for further research into medical misconduct. Prospective studies should focus on confirming the contributory factors and relationship between these four a priori risk factors for medical misconduct: being male, PMQ outside of the UK, increasing age and working in general practice or surgical settings.

INTRODUCTION

Medical misconduct is an international problem encompassing different forms and types of behaviour that result in unsafe practice.[1] Medical misconduct is defined here as any act leading to a medical doctor (hereafter referred to as 'doctor') being deemed unfit to practice. Common patient safety measures worldwide aim to improve reporting and management of complaints about medical misconduct.[1–6] However, legislative guidance pertaining to medical misconduct differs across countries. Literature from America, Australia and the UK suggests the doctor's sex (male) could be related to the likelihood of committing serious medical misconduct.[6–9] In the UK, cases of misconduct are judged according to whether a doctor has endangered the health of the public, has damaged the public confidence of the profession or has fallen short of the professional standards expected.[10] The perceived severity of harms can influence the judgement of misconduct: harms might include death, disability, disfigurement, sexual assault and neglect of basic human rights.[11–13] Clinical negligence claims cost as much as £65 billion annually in the UK alone.[14]

Searle *et al*[7] recently identified antecedents of professional misconduct. The report highlighted how sexual offences are more likely to be carried out by medical professionals with opportunity to exploit young women and patients in vulnerable care contexts (such as psychiatric hospitals and nursing homes). Other studies on medical misconduct support Searle *et al*'s[7] finding that male doctors in particular are more commonly found guilty of misconduct. These authors also suggest doctors qualified outside the UK are associated with higher impact decisions at all stages of fitness to practice investigations.[6 8 9] An earlier critical review of unsafe, undignified medical care in the UK has suggested that substandard health service leadership is a cause of widespread failures, including loss of life.[15–17] Improved governance in the UK has since been implemented to improve public safety while in the care of healthcare professionals.[15–17]

Current debates about 'human factors' such as team miscommunication and system errors are relevant to patient safety.[13 18] Searle *et al*[7] noted long working hours and reduced training levels could increase the likelihood of medical misconduct. Understanding the cause and consequence of medical misconduct also involves judgements about a

person's character and competence.[1 13] While there is some literature about this important issue, relatively little work has been undertaken to predict and thus prevent these major incidents through relating known risk factors for medical misconduct to debates about the quality and safety of health services. Yet a greater understanding of the risk factors associated with medical misconduct could lead to preventative measures, potentially reducing the medical risk to patient safety in the UK and beyond. To develop knowledge application in this field, this review aimed to identify the current risk factors associated with medical misconduct in the UK. This 'focused mapping review and synthesis' (FMRS) of medical 'fitness to practice' data was obtained from publically available, investigative, tribunal reports. The findings provide a snapshot of the risk factors impacting on the likelihood of medical misconduct in healthcare settings.

METHOD

Study design

We undertook an FMRS of fitness to practice investigations involving complaints about medical misconduct. FMRS is an emerging form of review that has been used and described only recently.[19–23] Unlike many other review methodologies that produce a broad and exhaustive systematic review of the literature, this review methodology reduces the breadth of a study, ensuring the research has a specific focus. This is achieved by identifying a predetermined timeframe, predetermined sources of information (mostly journal and databases) and a particular subject area. Rather than undertaking exhaustive searches to synthesise evidence of 'what works', an FMRS identifies what is happening within a particular subject or field of inquiry—in this case, medical misconduct. The FMRS has four distinct features[23] (box 1).

A four-phase FMRS was undertaken, linked to the features outlined in box 1

Phase 1: Database search: identification and retrieval of tribunal transcripts from the Medical Practitioners Tribunal Service (MPTS) database between February 2016 and January 2017 (focus).

Phase 2: Data analysis: analysis of tribunal transcripts to identify patterns and correlations, mapped to 'a priori' risk factors (mapping).

Box 1 Features of a focused mapping review and synthesis

1. Focuses on a defined field of knowledge rather than a body of evidence.
2. Creates a descriptive profile of key features of research within the field rather than a synthesis of findings.
3. Comments on the overall approach to knowledge production rather than on the state of the evidence.
4. Examines data within a broad epistemological context.

Phase 3: Calibration: peer review of the database search and data analysis, and confirmation of the contributory a priori risk factors.

Phase 4: Creation of a risk profile: diagrammatic representation of findings (synthesis).

As far as we are aware, our FMRS of the MPTS tribunals, a form of grey literature, surrounding medical misconduct is the first of its kind in healthcare research.

Additionally, to date, all published FMRS articles report on data retrieved from journal articles rather than database sources, which provide our review with methodological novelty and advancement of science.[23] The use of the grey literature from the MPTS provided publicly available contemporary evidence from fitness to practice tribunals. The FMRS further delivered an analytic snapshot of current risk factors associated with medical misconduct.

Data Search

We retrieved and analysed 351 medical practitioner tribunals from the MPTS database. The MPTS adjudicates on complaints made against a doctor and determines whether a doctor has committed medical misconduct—unless the doctor has already been found not guilty—or the case against them has been closed by the General Medical Council ((GMC); the public body that maintains the official register of medical doctors within the UK) earlier on in the investigative process.[10 24] The MPTS retains records for all tribunals it performs. The tribunal records were retrieved from the MPTS website. At the time of undertaking this research, the 'Recent Decisions' located within the MPTS website contained records of every tribunal that had publically taken place between February 2016 and January 2017.[25]

In line with the focused nature of the FMRS, we set the inclusion and exclusion criteria according to the dated parameters, prioritising doctors only and including final tribunal investigative reports only. All searches and data extraction were undertaken by the lead reviewer (EC), and a sample was peer reviewed (calibrated) by all members of the team. The MPTS database is continually updated and contains only transcripts from the past year, meaning at the time of publication, the tribunal transcripts used for analysis during this study were no longer publically accessible. However, if required, all tribunal transcripts used in this study can be accessed following a freedom of information request, as the MPTS is a public sector organisation.[26]

Data extraction and analysis

Data extraction and analysis of each of the tribunal reports permitted the content data to be analysed using four a priori themes derived from our analysis of the available international literature on medical misconduct. Four a priori themes dominated: (1) sex/gender, (2) medical specialties, (3) length of time since primary medical qualification (PMQ) and (4) the country where PMQ was achieved. These were converted into four objectives, whereby the aim of the review was to

1. Identify the gender of each doctor found guilty of medical misconduct by the MPTS.
2. Determine the medical specialties of those found guilty of medical misconduct by the MPTS.
3. Establish the length of time since PMQ was achieved when the doctors were found guilty of medical misconduct by the MPTS.
4. Ascertain in which country PMQ was achieved by doctors found guilty of medical misconduct by the MPTS.

Mapping the data is a key component of the FMRS. In the context of our review, the inductively derived themes were mapped onto the a priori framework, providing a comprehensive, structured presentation of results.

Calibration of data

Additional peer review of the accuracy and rigour of the data collection and data extraction was undertaken by all authors (EC, MTC, CB-J and NE). Rigour checks involved independent member checking of a random selection of 10% of 351 randomly selected tribunal transcripts allocated to a priori themes. To ensure the credibility and trustworthiness of the FMRS, the calibration was achieved through ongoing discussion until consensus was reached.[23 27 28] We subsequently developed a synthesising statement of the results, focusing on the confirmation of the four a priori factors and any intersectionality or relationship between them. To do this, we drew from the patient safety literature, exploring reported human factors that might influence patient safety outcomes in healthcare settings.

Statistical analysis

Descriptive statistics were used to summarise nominal data. Continuous data (eg, years since qualification) were transformed to nominal data. χ^2 tests were conducted to identify any relationships between the outcome of an MPTS tribunal (dependent variable) and the four a priori risk factors (individual independent variables).

RESULTS

MPTS tribunal outcomes

Out of the 351 tribunals, 249 (70.94%) ended in a guilty verdict, while 91 (25.93%) tribunals led to a not-guilty verdict. The equivalent of 0.09% of doctors working in the UK were found guilty of medical misconduct between February 2016 and January 2017.[29] Interestingly, 82.73% of all guilty verdicts led to the removal of the doctor from practice, in the form of a suspension or complete erasure from the GMC register. Below we confirm the contributory four a priori risk factors associated with medical misconduct, also supported in the wider literature[1–8 13]:

- Being male.
- PMQ achieved outside of the UK.
- Working within general practice and surgical specialties and
- Having passed PMQ more than 20 years ago.

Table 1 Summary results: data analysis

A priori risk factor	Doctors found guilty of medical misconduct (%)
Sex	
Male	84
Female	16
Medical specialty	
General practice	31.33
Surgery	15.66
Other	53.01
Time since PMQ	
20–29 years	26.91
30–39 years	24.1
Other	48.99
PMQ studied in the UK	
Yes	33
No	67
Country of PMQ study, where not UK	
India	19.64
Nigeria	13.69
Pakistan	8.33
Egypt	8.33
Germany	6.5
Other	43.51

PMQ, primary medical qualification.

Gender of the doctor

The majority of doctors found guilty of medical misconduct were male (84%) (table 1). This result is of particular interest as the percentage of men registered with the GMC in the UK is 54.6%, suggesting that men were over-represented by 30%.[29]

Medical specialty

The medical specialty of the doctors was analysed, with doctors considered to be specialised if they were

- Registered on a specialty register.
- Occupying a specialty role at the time of misconduct.
- Undergoing specialty training.

General practitioners (GPs) (31.33%) and surgeons (15.66%) were the most frequent specialties within which doctors were found guilty of medical misconduct.

Time since qualification

The time since the doctors obtained their PMQ was calculated from each of the tribunal transcripts and was categorised into 10-year periods, to identify the most common 10-year period into which medical misconduct fell.

The average time for those found guilty of medical misconduct was 26.31 years since qualification. Most doctors fell into one of two groups: 20–29 and 30–39 years since qualification, meaning more experienced doctors were found guilty of misconduct than those with

Table 2 Comparison of estimated age ranges of doctors working in the NHS and those found guilty of medical misconduct

Time since qualification and age range: a comparison of the percentage of doctors working in the UK and those found guilty of medical misconduct				
Time since qualification (years)	Age range*	Doctors in the NHS (%)	Guilty of medical misconduct (%)	Difference (%)
0–9	24–33	26.90	7.68	+19.22
10–19	34–43	29.70	26.50	+3.20
20–29	44–53	22.10	31.91	−9.81
30–39	54–63	13.70	31.34	−17.64
40–59	63 and older	6.0	11.40	−5.4

Data obtained for the percentage of doctors working in the NHS within each age group from the annual GMC statistics.[29]
*Age ranges do not completely match the data extracted from the GMC; however, age ranges seen in this table were within 1 year of each age range seen in the statistics from the GMC.
GMC, General Medical Council.

less experience. A comparison with national GMC data in 2017[29] showed that doctors who had been qualified for more than 20 years prior to misconduct were over-represented in the overall population of doctors found guilty of medical misconduct, as can be seen in table 2. Doctors who qualified between 20 and 29 years before misconduct were over-represented by 9.81%; doctors who had qualified 30–39 years prior to misconduct were over-represented by 17.64%. This is in contrast with those who qualified 0–9 years prior to misconduct, with such individuals under-represented in the population of doctors found guilty of medical misconduct by 19.22%.

Country of PMQ

There was an over-representation of doctors who trained outside of the UK in the tribunals analysed, with 67% of doctors having a non-UK PMQ found guilty. GMC statistics show that 37.5% of doctors working in the NHS are trained outside of the UK.[29] The top five countries where PMQ was achieved outside of the UK by doctors found guilty were India (19.64%), Nigeria (13.69%), Pakistan (8.33%), Egypt (8.33%) and Germany (6.5%). A comparison of the results from this study to the proportion of doctors working in the NHS who trained in these countries is shown in table 3. The results demonstrate that doctors who achieved PMQ in each of the five countries are over-represented in the tribunal reports, with Indian and Nigerian doctors being over-represented by more than 10%.

Table 3 A comparison of the percentage of doctors who work in the NHS from the top five countries of PMQ, with the percentage of doctors found guilty of medical misconduct from the five countries[29]

Country of PMQ, where not UK	Doctors working in the NHS (%)	Doctors guilty of medical misconduct (%)	Difference (%)
India	9.0	19.64	−10.64
Nigeria	1.6	13.69	−12.09
Pakistan	3.8	8.33	−4.53
Egypt	1.3	8.33	−7.03
Germany	1.1	6.5	−5.4

PMQ, primary medical qualification.

Statistical data analysis

The results of the χ^2 tests indicated there was no statistically significant association between the four a priori risk factors and the likelihood of a doctor being found guilty of medical misconduct at an MPTS tribunal. Correlations were considered as 'very little to no'. Instead, we suggest intersecting 'human risk' factors, such as sex, age and place of PMQ, might be better explained by social analysis. For example, we noted a number of 'unconfirmed' contributing factors, which could have an influence on increasing the likelihood of medical misconduct taking place. Examples of unconfirmed a priori risk factors include locum work, a non-UK PMQ (outside of the European Union), the clinical setting, interpersonal relationships (prescribing for family members), increasing age, lack of clinical guidance and the 'grey area' between what is deemed professional behaviour and what is not. Considering the confirmed and unconfirmed features led us to our synthesising statement of a priori risk factors for medical misconduct in the UK.

Synthesis: a model of a priori risk factors for medical misconduct

Through the identification of the four a priori risk factors, we developed a 'red, amber and green' (RAG) model of risk, as illustrated in figure 1. The RAG model shows a typical 'traffic light' system of risk governance, in this case, indicating the primary features and level of risk associated with medical misconduct. The red findings are suggestive that the likelihood of a doctor committing medical misconduct in the UK appears increased if the doctor is male, has a non-UK PMQ, is working within general practice or surgical specialties, and has been qualified for more than 20 years. This working hypothesis now needs to be tested further with a larger sample

Figure 1 A red, amber and green (RAG) model of 'a priori' risk factors associated with medical misconduct.

size in order to confirm our relatively small-scale findings. Similarly, Searle *et al*[7] suggest the limits of their secondary data analysis in this regard. Thus, while the limitations of the small sample size are evident, the findings from the review do suggest further research to confirm these factors, as well as any intersecting relationships between them, is timely. Our FMRS also signposts to the amber area of a priori risk factors that require further exploration. These ancillary factors appear to intersect with the primary findings of this study. In particular, the relationship between temporary locum work, lack of operational guidance (in some clinical settings), poor professional boundaries and compounding family pressures.

DISCUSSION

Following data analysis and peer review of a random 10% sample of the 351 tribunal transcripts from the MPTS, the four factors identified in the literature prior to the analysis were confirmed as contributing a priori risk factors associated with medical misconduct. The data used to develop this model were corroborated by peer discussion, informed by the international literature, and supports the findings more recently reported by Searle *et al*.[7]

Searle *et al*[7] suggested two types of perpetrator: the 'bad apple' and the 'bad cellar'. The first intentionally seek out vulnerable patients and subjects them to violent abuse, including sexual assault. Nurses and allied health professionals are also represented in this group, and this cluster-based research suggests they may carry out the most violent type of crime. The second involves human factors such as poor working conditions and reduced training opportunities, which means that in some settings, the bad cellar is a contributory environmental feature of hostile staff behaviours.

In our review, there was a substantial over-representation of men in the number of doctors found guilty of medical misconduct. This finding is supported throughout the literature.[1 3 4 6 8 30] Reviews undertaken by Clay and Konatser[31] and Kohatsu *et al*[32] suggest that men are considerably over-represented in this population within the USA, with 90% and 91% of the misconduct cases perpetrated by men respectively. A report on the State of Medical Education and Practice in the UK published in 2015 by the GMC stated that 75% of doctors investigated for misconduct were male.[33] Although this is almost 10% less than was calculated in this study, the results clearly support the findings of this research. Searle *et al*[7] overwhelmingly supports this finding; they identified male doctors were the most likely to be found guilty of sexual misconduct and theft. Therefore, being male appears to be a contributory a priori risk factor associated with medical misconduct.

The General Practice register is by far the largest medical specialty in the UK, with its members making up 24.1% of all doctors.[29] Despite this, GPs still made up a disproportionate number of doctors found guilty within our data. There was more than a 5% difference between the number of GPs found guilty of medical misconduct when compared with the percentage of doctors that were members of the specialty. Surgeons were also found to be over-represented within our data. While surgeons make up approximately 6% of the number of doctors in the UK, 15.66% of doctors found guilty of medical misconduct in the data were surgeons, indicating they were over-represented by almost 10%.[34]

It was not wholly surprising that GPs and surgeons were prevalent in the population of doctors found guilty—multiple studies undertaken worldwide have reported similar findings.[1 7 31 32 35] It is suggested that the higher number of complaints against GPs, compared with other specialties, was likely caused by the greater doctor–patient contact time in primary care than in some other areas of practice.[36] However, this does not explain why surgeons are also over-represented, which opens opportunities for further investigation.

Despite the limitation of estimating the time since PMQ, the majority of the international literature supports our findings. Throughout the international literature, the average time since PMQ varies between 21 and 30 years in the population of doctors found guilty of misconduct.[1 3 5 37] However, there is an opposing report to this finding, with Clay and Conatser[31]and identifying that doctors were more likely to be found guilty of medical misconduct less than 20 years after leaving medical school. Nevertheless, the majority of results fall in line with the findings of this study, where doctors who completed PMQ more than 20 years ago were more likely to commit medical misconduct. Although the potential risk of medical misconduct appeared to be increased drastically when a doctor had qualified between 30 and 39 years ago, the risk factor mainly associated with medical misconduct was when the doctor had passed 20 years post-PMQ. It is also noteworthy that doctors who achieved PMQ less than 9 years prior to misconduct taking place were under-represented in the population of doctors found guilty of misconduct by almost 20%. This finding could be due to the greater leniency new medical graduates are shown within the

complaints process, or an indication that recent changes to medical education have had a positive impact on the standard of doctors graduating from medical schools.[10]

Achieving PMQ outside of the UK was found to be a major contributory a priori risk factor of medical misconduct taking place in the UK. Although not widely or commonly reported, international PMQ has been noted in the international literature as a potential risk factor for medical misconduct.[6 32 38] The GMC[33] reported that 5.9% of doctors who trained overseas were subject to a complaint, compared with just 3.8% of doctors who trained in the UK.[33] Surprisingly, it also reported that 56% of complaints made were about UK-trained doctors, which is inconsistent with the results seen in this study.[33] However, the results from this study were only obtained once the doctor had reached the final stage of the complaints process, while the 56% calculated by the GMC was taken from the start of the investigative process. Nevertheless, there is a striking difference between the percentage of non-UK-trained doctors who were the subjects of complaints made to the GMC and those who received a proven medical misconduct verdict by the MPTS, 44%–67% respectively.[33] The reason for this marked difference is not clear. A cohort study by Humphrey *et al*[9] in the UK suggested doctors who trained overseas were subject to 'higher impact decisions' at each stage of the complaints process. This too warrants further investigation. The sociocultural scope of practice is underexplored. More needs to be understood about the transnational medical routes open to male medical doctors seeking permanent work in the UK. The tribunals tell us the countries where primary PMQ was achieved, but we know little about the citizenship and employment experiences of non-UK PMQ-trained doctors who live and work in the UK.

The contextual, significant shortage of medical doctors working in the UK healthcare system suggests the results of this report are important to explore.[39] To ensure the safety of all patients, research is required to understand why doctors who trained outside of the UK appear to pose a greater risk of committing medical misconduct. One such area that should be focused on is the application process to gain a licence to practice in the UK. The 'standard' of medical education, as well as the 'quality' of doctors attaining their PMQ in these countries, has been criticised in four out of the five countries (India, Nigeria, Egypt and Pakistan) where PMQ was most commonly achieved outside of the UK in guilty misconduct tribunals.[40–43]

In these studies, it is reported that studying courses in English, rather than in the native languages, is perhaps limiting and disadvantageous. Little is known about the comparative medical skills of doctors with respect to different languages and ethical and cultural learning styles. However, it is reasonable to assume that perhaps UK-trained doctors are better able to adhere to UK regulations. This is despite many universities from within these other countries being part of the World Directory of Medical Schools, enabling their students to initiate the application process to work as a doctor within the UK.[44] The Welcome to UK Practice programme (a half-day course to understand the ethical issues associated with working as a doctor in the UK) is an *optional* learning session.[45] Problems integrating into new societies and understanding the cultural and ethical complications have been a widely reported issue of internationally trained doctors working within a new country.[46–49] These issues were only recently highlighted by Searle *et al*.[7] They noted doctors found guilty of sexual misconduct, who trained overseas, had a poor understanding of the differences between the cultural and ethical boundaries in the UK compared with their country of study. Therefore, we suggest better knowledge of the NHS and the socioethical challenges of working in the UK must be better integrated into the recruitment and employment process. Further research is required to identify how best to integrate the ethical issues associated with working in the UK into the Professional and Linguistics Assessment Board testing system (competency tests the majority of doctors who trained outside of European economic area must pass before applying for a licence to practice medicine in the UK) to evaluate its effectiveness.[44]

Intersectionality and risk

Although four key contributory a priori risk factors have been identified, it remains unclear whether there is a social or associative relationship between some or all of these factors. To identify whether the factors identified are independent of each other or interconnected, intersectionality analysis could be helpful to future studies.[50 51] Intersectionality analysis has become more prominent in healthcare research in recent years: Keshet *et al*[52] used intersectionality analysis to study Arab under-representation in the healthcare workforce in Israel. An intercategorical approach would be the most effective method to undertake intersectionality analysis for medical misconduct. The methodology, set out in the McCall[53] review on intersectionality, would allow for any inter-relations between the a priori factors to be assessed, with a view to better understanding contextual features of misconduct, including the primary medical training factors that may impact on patient safety.[51]

CONCLUSION

This FMRS established four a priori risk factors in tribunal cases that are associated with medical misconduct taking place in the UK. FMRS has been used here to answer a practical research question that would not have been appropriate for other review types. The application of FMRS to an investigation of medical misconduct shows it is a useful addition to risk governance for patient safety. The method can be extended to a larger data set, developing knowledge about standards for practice. The findings of this study support the limited international literature about risk factors associated with medical

misconduct, providing new evidence of human antecedents that impact on patient safety. The findings should inform debates about future risk management strategies and lay the groundwork for further research into medical misconduct. Prospective studies should focus on confirming the contributory factors and relationship between these a priori risk factors, that is, being male, PMQ outside of the UK, increasing age, and working in general practice or surgical settings. This may help to reduce and prevent the burden of tribunal investigations, promoting safer patient care through medical fitness to practice.

Contributors MTC planned and supervised the study. EC conducted the data collection and analysis. NE contributed to the data analysis. CB-J contributed to method development. All authors contributed to the final synthesis and writing of the manuscript.

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